

AMENDMENT UNDER 37 C.F.R. § 1.116

U.S. Appln. No. 10/033,918

Q67868

REMARKS

Upon entry of the Amendment, Claims 8 and 16-24 are all the claims pending in the application. Claim 7 is canceled. Claim 8 is rewritten in independent form by incorporating the subject matter of original Claim 7. Claim 8 has been further amended to recite that the grease is effective in preventing flaking accompanying a white structure observed in electric accessories of an automobile. Claims 23-24 are new dependent claims finding support, for example, in original Claims 14-15 and 21-22. Entry of the Amendment is respectfully requested as placing this case in condition for allowance.

Reconsideration and review of the claims on the merits are respectfully requested.

Claim Rejection Under 35 U.S.C. § 103(a)

Claims 7-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Imamura et al (U.S. Patent 5,282,689) in combination with Asao et al (U.S. Patent 5,804,536) or Fletcher (U.S. Patent 5,650,380) for the reasons given in the Office Action.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the amendment to the claims, the declaration evidence submitted herewith and the following remarks.

In the Amendment under 37 C.F.R. § 1.111 filed April 29, 2003, Applicants pointed out that the generation of flaking accompanying the white structure change peculiar to a fixed ring of a rolling bearing of electric accessories for an automobile is affected by the kind of rust-preventive agent present in the grease that is packed in the rolling bearing.

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In this regard, the claims have been further amended to clarify that the present invention relates to solving the problems peculiar to the rolling bearing of electric accessories for an automobile.

Further, Applicants submit herewith the Declaration under 37 C.F.R. § 1.132 by one of the inventors, Mr. Kenichi Iso of NSK LTD's research and development office, to show the unexpectedly superior results of the present invention in preventing flaking accompanying any white structure change. Applicants kindly ask the Examiner to carefully study the experimental data in the Declaration.

As set forth in the Declaration, four types of grease compositions falling within the scope of Imamura's claims were prepared. Each of the four types of grease compositions was prepared from the same diurea compound (thickener), the same ether oil (base oil) and the same antioxidant. The only differences among the four types of grease compositions are in the kind of rust-preventive agent and amount thereof. All of the four types of grease compositions have the worked penetration of NLGI No. 2.

Regarding the rolling bearing packed by each of four types of grease compositions, the flaking test was carried out in the same manner as in the Examples of the present application. As a result, flaking was generated only when the rolling bearing was packed by the grease composition containing Ba sulfonate which is a conventional rust-preventive agent. When the rolling bearing was packed by one of the grease compositions containing a succinic acid ester and/or zinc naphthenate falling within the scope of the present invention, no flaking was generated.

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Also, regarding the rolling bearing packed by each of the four types of grease compositions, a rust-prevention test was carried out in the same manner as in the Examples of the present application. With respect to the results of the rust-prevention test, there is no difference among the four types of grease compositions. That is, no rust was generated when each of the four types of grease compositions was used.

According to the above results, although the succinic acid ester, zinc naphthenate and Ba sulfonate showed the same rust-preventive effect as the rust-preventive agent, the succinic acid ester or zinc naphthenate is quite different in their effects as a flaking preventing agent (or flaking accelerating agent) from Ba sulfonate. The difference is remarkable when compared to the grease composition claimed by Imamura. Notably, the Flaking Test Result of Comparative Example 1 of Imamura shows a 75% flaking generation ratio (Ba sulfonate) whereas the Flaking Test Result of Supplemental Examples 1-3 of the present invention indicate no flaking whatsoever (one or both of Zn naphthenate and succinic acid ester).

Imamura is only concerned with selection of a base oil for a grease used as a lubricant and the premature flaking phenomenon (col. 2, lines 56-60), and does not consider the role of the rust-preventive agent. Likewise, although Asao describes a half ester succinate as a rust-preventive additive, Asao does not consider the relationship between the additives and the flaking accompanying the white structure change. Likewise, although Fletcher describes the metal salt of naphthenic acid as a friction-wear inhibitor, Fletcher also does not consider the relationship between the additives and flaking.

Thus, none of Imamura, Fletcher and Asao recognize the effect of a naphthenate or a succinic acid derivative in the prevention of flaking relative to conventional Ba sulfonate. Applicants' understanding is clearly correct, because Imamura describes on col. 5, line 20 to col. 6, line 8 that any known additive can be used, implying that no particular ones are beneficial or superior as flaking preventing agents.

Because Imamura, Fletcher and Asao do not disclose, teach or even suggest the unexpectedly superior results of a naphthenate or succinic acid derivative in reducing the amount of flaking, Applicants submit that the present invention can not be achieved based on the teachings of Imamura, Fletcher and Asao each taken individually or in combination thereof.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a).

Withdrawal of all rejections and allowance of claims 8 and 16-24 is earnestly solicited.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the local telephone number listed below.

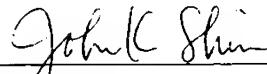
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Respectfully submitted,


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